U.S. ARMY TECHNICAL CENTER FOR EXPLOSIVES SAFETY

EXPLOSIVES SAFETY

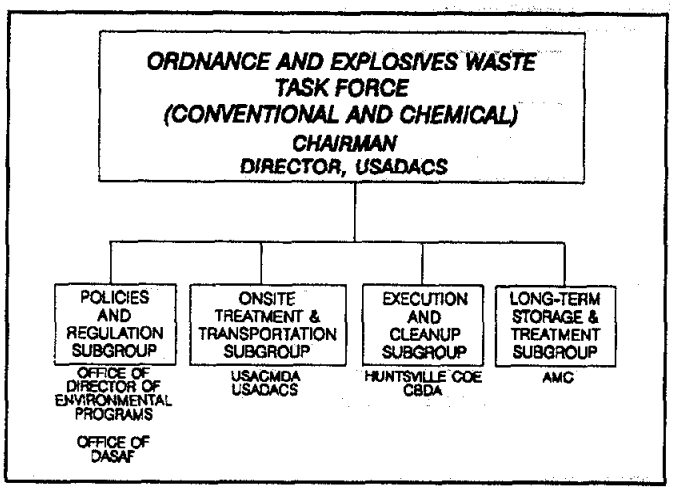
Volume 5, Issue 1 Savanna, IL 61074-9639 January 1994

ORDNANCE AND EXPLOSIVES WASTE TASK FORCE

The Army is taking a major step forward in organizing an Ordnance and Explosives Waste (OEW) Task Force. Its mission and purpose is to address major issues associated with remediation of OEW at Formerly Used Defense Sites (FUDS) as well as active installations through the Installation Restoration Program (IRP) and those installations associated with Base Realignment and Closure (BRAC). Additionally, the OEW Task Force will develop and recommend policy concerning the handling and ultimate disposition of both conventional and chemical munitions discovered. It will serve as a sounding board and an advisory group to the Assistant Secretary of the Army (Installations, Logistics, and Environment) (ASA[IL&E]) and the Ordnance Executive Environmental Steering Committee (OEESC).

The Task Force has been sanctioned by Deputy Assistant Secretary of the Army (Installations, Logistics, and Environment) (DASA[IL&E]) and will operate through an approved charter.

It is organized with a chairman and four subgroups which will operate as working groups. The structure is as shown.



A preliminary meeting was held at HQ, U.S. Army Armament, Munitions and Chemical Command (AMCCOM) on 28 June 1993. This was based on the initiative of the Commanding General, (CG), AMCCOM, Major General Greenberg, and his interest in addressing the significant issue of OEW transportation and locations for storage and disposal of the OEW. The result of that meeting was an agreement to establish a task force. The concept developed was briefed to the DASA(IL&E) on 19 August 1993, and was approved. The first chairman and subgroup meeting occurred at HQ, AMC on 14 December 1993. This was in preparation for the first OEW Task Force meeting, again held at HQ, U.S. Army Materiel Command (AMC) on 5 January 1994. The direction was given for the Chairman, Mr. John L. Byrd, Jr., Director, U.S. Army Defense Ammunition Center and School (USADACS), to now brief the DASA(IL&E) and the OEESC on a summary of the meeting results to include the Task Force membership and Task Force organization along with a synopsis of the issues being addressed.

Following is a list of the OEW Task Force membership organizations:

Office of the Director of Environmental Programs (ODEP), Office of the Assistant Chief of Staff for Installation Management (OACSIM)

Office of the Director of Army Safety (ODASAF)

Office of the Deputy Chief of Staff for Logistics (ODCSLOG)

Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS)

U.S. Forces Command (FORSCOM)

U.S. Army 52d Explosives Ordnance Group (EOD)

U.S. Army Training and Doctrine Command (TRADOC)

AMC

Deputy Chief of Staff for Ammunition (DCS for Ammo)

U.S. Army Industrial Operations Command (IOC)

U.S. Army Chemical and Biological Defense Command (CBDCOM)

U.S. Army Chemical Materiel Destruction Agency (USACMDA)

USADACS

U.S. Army Corps of Engineers (USACE)

Director of Military Programs

U.S. Army Engineer Division, Huntsville (USAEDH)

U.S. Army, Pacific (USARPAC)

Military District of Washington (MDW)

The U.S. Environmental Protection Agency (EPA) supports the Task Force in an advisory roll. The U.S. Army Environmental Law Division and Office of General Council provide advisory support as well.

We will continue to provide updates on the OEW Task Force concerted activities and accomplishments through this bulletin. Should you have questions or desire additional information you may contact Mr. Melvin Colberg, DSN 585-8801, commercial (815) 273-8801.

GARY W. ABRISZ
Associate Director, USATCES

TRANSPORT OF DETONATORS AND HIGH EXPLOSIVES IN THE SAME VEHICLE

The Code of Federal Regulations 49 (CFR 49) does not allow the transport of detonators (compatibility group B) with high explosives (compatibility groups D or E). There is one exception to this rule, detailed in section 177.835g(1) of the CFR 49. Detonators and high explosives can be transported in the same vehicle when a limited amount of detonators are placed in a container that meets DOT specification MC 201. A Navy designed container, designated as the MK 663 MOD 0, meets the DOT MC 201 specification. The container is a stainless steel cylinder 8.5 inches long, 4.5 inches in diameter and has walls that are .25 inches thick. It has a heavy steel lid that screws into place. This specialized container will hold up to 10 detonators (either electric or non-electric). The NSN of the item is 1385-01-119- 3324. Currently, the use of this container is restricted to tactical/emergency operations conducted by Explosives Ordnance Disposal (EOD) or special operations teams.

by: Mr. Greg Heles
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DEMOLITIONS SAFETY

Recent explosives accidents at demolition ranges in CONUS, Alaska, and Korea have killed and injured soldiers in training.

Fragments from explosive devices, targets, or unrelated scrap laying on the range in the vicinity of the detonations were propelled by the force of the explosions and impacted unprotected soldiers. In all cases, the soldiers were not properly protected by appropriate in-the-open minimum safe distances from the detonations nor were they in proper missile-proof shelters on the range during detonations.

The lesson we must learn from these accidents is that detonations generate fragments and debris in all directions, following high, medium, and low angle trajectories. These fragments and debris have the potential to kill or injure personnel in their paths.

AR 385-63 and FM 5-250 provide the minimum safe distances at which unprotected troops may be positioned during detonations and authorize the use of missile-proof shelters at reduced separation distances. Leaders must know where the safe positions are for the specific detonation intended and require soldiers to occupy these positions without exception. Incorrect estimation of distances or assumptions about the protection afforded by range topography or facilities can prove deadly.

Implementation of the following recommendations by units in training and by range support organizations should reduce the frequency of further accidents of this type:

a. Address, during command information sessions, the hazards of high, medium, and low angle fragments generated by detonations.

b. Add the computation of "minimum safe distances" to all unit and Army school demolition techniques plan of instructions.

c. Add to all unit and formal school training in demolition techniques the requirement to use available missile-proof structures in lieu of minimum safe distance when the scheduled ranges do not provide sufficient in-the-open separation.

d. Assure that rehearsals for demolitions training cover the specifics of each shot, not just generalities about the training.

e. Provide information to using units during range safety briefings and in range policies on the following:

- Range explosive weight limit based upon the intended technique of employing the stated munitions.
- Requirement to use missile-proof structures for all charge weights above an announced charge weight based upon the specific range to be used.
- The exact distances between key locations on the demolition range such as: The outer edges of the detonation area and parking areas, bleachers, improvements which could be perceived as shelters, missile-proof shelters, hide positions, etc.
- The specific protected positions to be occupied for each event (shot) in a multiple shot exercise.
- The requirement to base minimum safe distance computations on the total charge weight to be detonated simultaneously.
- Requirements to remove all metal scrap from demolitions training areas (both up- and down-range) frequently preclude creation of an unsafe debris condition.
- Unit responsibility to enforce all safety rules, especially ensuring all personnel are in the correct protective location/position prior to allowing charges to be initiated.
- Added dangers caused by improper or incomplete tamping of charges.

by: John Willut
QASAS
DSN 585-8804

SPECIFIC OPERATION ASSISTANCE REVIEWS

The USATCES has conducted Specific Operations Assistance Reviews for the past several years. The SOARs were a coordinated effort between the USATCES and the various ammunition plants and proved to be mutually beneficial. The action officers assigned to conduct the SOARs were able to get to plants and observe on-site the operations and facilities known previously only through review of site plans or response to technical concerns. The plant commanders through their safety staff were able to get an "extra set of eyes" to observe and comment on their explosives operations.

The SOARs were not intended to serve as an inspection or duplicate efforts by others. Rather, the observations and comments were provided directly to the staff and commanders, and not forwarded through higher command. This reduced the amount of follow-up action and allowed for more direct support between the USATCES action officers and the plants.

The SOARs were focused reviews of explosives operations as determined by the plant commanders. They chose the operations which were of greatest concern to them. The review was directed toward the details of the operations selected with an approach of "detecting an accident before it happens". The action officers were able to assist the plants by offering constructive criticism from a worldwide perspective.

Two SOARS are scheduled for FY 94 at TECOM installations. These have been coordinated with headquarters AMC and the TECOM safety staff.

by: Mike Wheless
QASAS
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QUESTIONNAIRE RESULTS

Volume 4, Issue 2 of the USATCES Explosives Safety Bulletin had a questionnaire included. So far 120 readers have responded. Remarks about the bulletin varied depending on the reason the readers had for reading it. The responses were positive and prompted us to try to provide our readers with the bulletin on a quarterly basis. We thought you might like to have the results of the questionnaire.

103 readers answered the question portion of the questionnaire.

The following is a breakdown to the question section:

Question	Yes	No
Do you read the USATCES Explosives Safety Bulletin?	103	0
Are the articles informative and useful?	103	0
Are the articles in sufficient detail?	98	4
Do you receive copies of the USATCES Explosives Statistics Bulletin?	42	61
Is the information in the USATCES Explosives Statistics Bulletin informative?	38	4

The following comments are taken verbatim from the questionnaires received. The only comments that are not included below are not relevant to the comment section (i.e. "Please add us on the distribution list.";

"Munitions Hazardous Waste is a big issue that nobody seems to want to make a decision on. We need any and all information available regarding the environment and hazardous waste and how munitions may fit in."

"Article in this issue on HC Smoke is excellent, however, a paragraph could be added on how to use HC smoke safely."

"Although articles may not have sufficient detail, we can obtain information as needed. Concern is that USADACS will keep Camp Navajo (formerly Navajo Army Depot) on the list."

"Although I am no longer working in the ammunition field, I find the explosives safety newsletter both interesting and informative. I often make copies of the newsletter and forward to people I feel would be interested in certain articles. Keep up the good work!"

"Articles contain enough detail to keep the reader informed and then provide a POC to contact if further information is desired. Excellent format and should be continued."

"Good source of up-to-date information. Good perspective and background data. Thought you would like the compliment. TQM perspective respective seeing what other offices are doing."

"The ESB is passed around thru-out the Pantex Plant; a lot of useful info is in the bulletin. Keep up the good work!"

"Good and professional. Keep up good work."

"A very useful source of external information assisting with the management of safety of explosives." (New Zealand)

"I supervise the transportation section at Jefferson Proving Ground. We ship and receive arms, ammunition and explosives. I feel this bulletin would be very helpful."

"The Explosives Safety Bulletin is great. Please add my name to your list for the USATCES Explosives Statistics Bulletin."

"The safety bulletins come whenever. I get maybe 1 out of 4. As the SQ Safety NCO, I get good briefing info from this bulletin. Could you make sure I get on Distro."

"This is a very informative & useful bulletin for all Army Safety Officers/personnel."

"Would appreciate copies of above. Explosives Safety Bulletin very informative."

"Bulletin is useful and informative. Please add our agency to your distribution."

"I've only see 2 of these bulletins but they were both excellent. Any new info on safety as related to ordnance is not only helpful but required in my job as the ordnance contractor at NAVMAG Lualualei, HI."

"Good information. Lots of the same information used to be in TMs and etc. Some of these articles should be posted on bulletin boards. Information will be passed to 55B30 students."

"An excellent publication. Keeps us up to date."

"Would like to see more articles about status of DA Pam 385- 64 and TM 9-1300-206. Keep up the good work!"

"You are doing a fine job."

"I find that only about 20% of the information provided in the bulletin corresponds with my duties as a UTES supervisor. This 20% is very informative and beneficial to my operations."

"This is a very important publication. Would budget cuts results in its elimination or reduction of issues, it will have a very negative impact on explosive safety."

"Excellent publication which warrants expansion."

"A super bulletin! Keep up the good work!"

"Just what we need - brief, short, and to the point articles that get the job done - alerts us to potential hazards, etc. It's a shame that incidents like the "nail gun accidents" happen and we end up restricting their use. I was at an installation a couple of years ago where a guy stapled his hand to a 4 x 4 brace in a rail car - should we have stopped the use of staplers due to operator fault?"

"I would like to see more information about the ESI database. What can it do for me?"

"Information has proven to be up to date. Certainly helps keep field personnel informed."

"As the ammunition accounting systems mgr. and POC on ammo matters for this State (MA.) the information in this bulletin is invaluable to me."

"The data in "Explosives Statistics" is of minimal value without analysis. Your statement "We make no attempt to analyze the reported data..." appears inconsistent with a mandate for collection and analysis of Army explosives accident data (per the 1988 Army Explosives Safety Management Plan)."

"Keep it coming!"

"This bulletin is often the only source for explanation of the AR 385-64 and soon to be received some day in the boonies of Draft DA Pam 385-64."

"Your publication appears to be quite useful. As a brigade- level Safety Officer, I need to read this on a regular basis."

"Please Keep me on your distribution list. I look forward to your bulletin."

"Particularly interested in explosives test data for reduced QD requirements of small quantities (NEW)."

"Explosives Safety Bulletin is required reading for all supervisory personnel. Our experience has found that even though little "Navy" specific information is in the bulletin the topics are pertinent and stimulate thought and conversation."

"Finally source statistics for threat hazard analysis! Good Job!"

The following is a summary of the distribution update:

a. 59 address additions.
b. 29 address changes.
c. 7 remove

Our distribution spread after the above update is:

ORGANIZATION	NUMBER
Department of Defense	71
Army	3419
Air Force	197
Navy	215
Marine Corp	14
Reserves	55
National Guard	201
Coast Guard	6
Other Federal Offices	19
State Offices	50
Contractors	322
TOTAL	**4569**

Mary M. Sieczkowski
Editor

BUTYL RUBBER PROTECTIVE CLOTHING

Because chemical agents are so extremely toxic, personnel who may be exposed to them must wear special protective clothing. Workers in the industrial base, TEU, and EOD may be exposed to very large concentrations of agent for extended periods of time due to the natures of their jobs. Currently, the protective clothing these people wear for the greatest degree of protection usually includes the M3 coveralls. (An exception is some demilitarization workers, who wear a special heat sealed suit.)

The M3 coveralls are made from a special fabric coated with butyl rubber on both sides. Butyl rubber is very resistant to penetration by chemical agents, so it can provide excellent protection to people working with chemical agents.

Because M3 coveralls are intended to provide a high degree of protection to people who are exposed to very high concentrations of chemical agent, they undergo rigorous testing and inspection to assure they are suitable for use. Unfortunately, inspections of several installations in the industrial base have found M3 coveralls which should not have been available for use. The most common deficiencies have been cut and abraded rubber or exposed fabric. Deficiencies such as these drastically reduce the effectiveness of the M3 coveralls in protecting workers from chemical agent. Even though coveralls may have passed a leak test with the Q79A1 tester or the procedures specified in TM 10-277, exposed fabric, cut rubber, etc. indicate areas of the suit where chemical agent can more readily penetrate the suit.

Every wearer of protective clothing must inspect it visually before putting it on to assure its serviceability. Failure to do so may result in becoming a chemical casualty during operations.

by: Steven Blunk
Chemical Engineer
DSN 585-8766.

UNDERGROUND AMMUNITION STORAGE TECHNOLOGIES PROGRAM - UPDATE

Research activities are continuing in this Joint U.S./ Republic of Korea (ROK) cooperative explosives safety effort. As described in previous bulletin articles (June 1992, September 1993) the goal of the program is to produce designs for underground ammunition storage facilities which will reduce the hazards to aboveground personnel and structures. We will also produce computer predictive techniques, reliable enough to preclude some future explosives testing - an avoidance of expense and elimination of potential hazard to testing personnel.

We are now in Phase 3 of our planned 5 Phase program. Phase 2, Small Scale Tests and Investigations has been concluded. The U.S. and ROK research staffs each completed a series of small scale explosives tests which simulated accidental detonations of munitions in underground magazines - testing different tunnel and chamber configurations. The results of these experiments are being analyzed and will be documented in a joint report. Preliminary findings from these tests indicate significant reductions can be achieved in the external effects of an underground explosion - primarily airblast and fragment and debris dispersal. The most promising concepts tested, which resulted in reductions of up to 85%, will now be further investigated during Phase 3. Phase 3 is a series of intermediate scale tests to be conducted by the U.S., literally inside a mountain in New Mexico, and by the ROK at a test site North of Seoul. These explosives tests - up to 2,800 kgs - will examine blast and debris control techniques selected from the Phase 2 test results. Measurements will be taken inside and outside the test chambers and tunnels, and at distances of up to several miles from the detonations. These will be analyzed to confirm or validate the reliability of the computer models used to predict the test results. Construction of the test chambers is underway and, after placement of gages and other instruments, tests are planned to begin in mid-February 1994.

With the conclusion of Phase 3, the selected explosion hazard reduction concepts and improved predictive computer models will be combined to produce underground ammunition storage facility prototypes for final testing and validating during Phase 4, Validation Tests. These tests are planned for 1994-1995. Phase 5, program completion, is scheduled in 1996, with final, DDESB-approved storage facility designs, predictive computer models and resultant changes to the DOD Explosives Safety Standards.

by: Richard Cashin
QASAS
DSN 585-8713/8803

JOINT HAZARD CLASSIFICATION SYSTEM (JHCS)

On 1 October 93, all automation functions of the JHCS transferred to the USATCES. The mission of the JHCS has been at USATCES since 1 Oct 92, with continued computer operations/support provided by the System Integrated Management Activity (SIMA), Chambersburg, PA and HQ, AMC, Alexandria, VA.

The JHCS is the official document for the Department of Defense to ship ammunition and explosives items. All the items in the JHCS are on file by the Department of Transportation (DOT) and therefore, legally authorized for transportation. The JHCS is a database of more than 13,000 items by National Stock Number along with the item's hazard classification information. Users now have access to this data on-line updated daily.

This effort is the culmination of a lot of hard work and coordination between USATCES, SIMA, and AMC.

Any user who already has an account for the USATCES Explosive Safety Information Data Base (ESIDB) does not need to get a new user ID and password. Access to the JHCS data is a new menu option added to the ESIDB menu.

For government employees to gain access to the ESIDB, send your first name, middle initial, last name, DSN phone number, commercial phone number, complete government mailing address to include office symbol and EMAIL address to Director, USATCES, ATTN: SMCAC-ESM, Savanna, IL 61074. This can also be sent via EMAIL to jhcs@savanna-emh1.army.mil. Contractors must send in their request through their Contracting Officer's Representative (COR) who must sign request and state that contractor has a valid need to access ESIDB.

by: Bob Carr
QASAS
DSN: 585-8730

AUTOMATED DIRECTORY ASSISTANCE SYSTEM

Those persons wishing to know the phone number of an office or individual at Savanna Army Depot or USADACS can use our Automated Directory Assistance System (ADAS). By dialing DSN: 585-8000 or COMM (815) 273-8000 the ADAS will guide the caller through a sequence of instructions designed to connect them with the party they need.

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SPECIAL COLLECTIONS AT THE TECHNICAL LIBRARY

The DA Explosives Safety Technical Library is developing a special collection of historic ammunition and explosives safety publications for research of Formerly Used Defense Sites (FUDS). Materials from our Library, and local controlled-access holdings, were inventoried and reviewed for their relevance to the USADACS Ordnance and Explosive Waste (OEW) mission.Other reference materials were acquired through the closings of the U.S. Army Material Command Field Safety Activity (FSA), and the Rock Island Arsenal (RIA) Technical Library, and were assessed for their research value. These materials are being organized into a reference collection that will facilitate the USATCES FUDS Team's research support to the Corps of Engineers, Rock Island District.

Among the various items that will comprise the collection are War Department technical manuals of ammunition, bombs, explosives, etc.; ammunition complete round charts from the 1930s; "Minutes of the Ordnance Committee" dating from 1919, books on the history of explosives and military pyrotechnics; illustrated works of Civil War weapons; early drawings of miscellaneous ordnance; and bound volumes of standard indexes such as the "Readers' Guide to Periodical Literature" from the 1960s.

Through funding by the Corps of Engineers, Rock Island District, our special collection is being cataloged into the Online Computer Library Center (OCLC) data base, an international bibliographic shared cataloging network. Records for our online catalog are then downloaded from OCLC before being loaded onto Scientific and Technical Information Library Automation System (STILAS). By accessing the OCLC interlibrary loan subsystem or STILAS, Rock Island, and other Corps districts, or Government agencies can locate the materials in this collection. We anticipate completing the cataloging phase of development of this collection by the end of FY 94.

We will expand our STILAS bulletin board announcements to include each title from every batch of newly cataloged special collection items. This will primarily serve as a current "cataloging" awareness tool for the Rock Island District. To view a list of these items, the Corps and other library patrons with access to STILAS should select the "FUDS Special Interest Publications" menu option. They can also select a full catalog record display for each title while on the bulletin board.

For information on interlibrary loan service for the special collection, or access to STILAS, contact the DA Explosives Safety Technical Library: (COMM) (815) 273-8771, (DSN) 585-8771.

by: Jacqueline S. Bey
Technical Librarian
DSN 585-8772

The EXPLOSIVES SAFETY BULLETIN targets the ammunition/explosives community. It is printed in Savanna, Illinois. If you wish to submit an article that is of interest to the ammunition/explosives community, or if you have a request for more copies of the bulletin, please forward it to: Director, U.S. Army Technical Center for Explosives Safety, Attn: SMCAC-ESM, Savanna, Ill 61074-9639 or call us at DSN 585-8710, commercial (815) 273-8710.